6SB7-Y

PENTAGRID CONVERTER

SINGLE-ENDED METAL TYPE

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage	6.3	ac or dc volts
Current	0.3	amp.

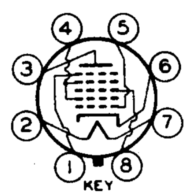
Direct Interelectrode Capacitances:

Grid No.3 to All Other Electrodes (RF Input)▲	9.6	μμf
Plate to All Other Electrodes (Mixer Output)▲	9.2	μμf
Grid No.1 to All Other Electrodes (Osc. Input)▲	7.3	μμf
Grid No.3 to Plate▲	0.13 max.	μμf
Grid No.3 to Grid No.1▲	0.16 max.	μμf
Grid No.1 to Plate▲	0.06 max.	μμf
Grid No.1 to All Other Electrodes and Shell, Except Cathode	3.8	μμf
Grid No.1 to Cathode	3.4	μμf
Cathode to All Other Electrodes and Shell Except Grid No.1	4.5	μμf

Mechanical:

Mounting Position	Any
Maximum Overall Length	2-5/8"
Maximum Seated Length	2-1/16"
Maximum Diameter	1-5/16"
Bulb	MT-8G
Base	Small Wafer Octal 8-Pin, Micanol
Basing Designation for BOTTOM VIEW	8R

Pin 1 - Shell, Grid No.5
Pin 2 - Heater
Pin 3 - Plate
Pin 4 - Grids No.2 & No.4



Pin 5 - Grid No.1
Pin 6 - Cathode
Pin 7 - Heater
Pin 8 - Grid No.3

CONVERTER SERVICE

Maximum Ratings, *Design-Center Values*:

PLATE VOLTAGE	300 max.	volts
GRIDS - No.2 & No.4 VOLTAGE	100 max.	volts
GRIDS - No.2 & No.4 SUPPLY VOLTAGE	300 max.	volts
PLATE DISSIPATION	2.0 max.	watts
GRIDS - No.2 & No.4 DISSIPATION	1.5 max.	watts
TOTAL CATHODE CURRENT	22 max.	ma.
GRID - No.3 VOLTAGE:		
Negative Bias Voltage	100 max.	volts
Positive Bias Voltage	0 max.	volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	volts
Heater positive with respect to cathode	90 max.	volts

▲ With shell connected to cathode.

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Characteristics - - Separate Excitation:*

Plate Voltage	100	250	. .	volts
Grids-No.2 & No.4 (Screen) Voltage	100	100	. .	volts
Grid-No.3 (Control Grid) Voltage	-1.0	-1.0	. .	volt
Grid-No.1 (Oscillator Grid) Resistor	20000	20000	. .	ohms
Plate Resistance (Approx.)	0.5	1.0	. .	Megohm
Conversion Transconductance	900	950	. .	μmhos
Conversion Transconductance**	3.5	3.5	. .	μmhos
Plate Current	3.6	3.8	. .	ma.
Grids-No.2 & No.4 Current	10.2	10	. .	ma.
Grid-No.1 Current	0.35	0.35	. .	ma.
Total Cathode Current	14.2	14.2	. .	ma.

Typical Operation in FM Band (88-108 Mc):

(See circuit on following page)

Plate Voltage	250	. .	volts
Grids-No.2 & No.4 (Screen) Supply Voltage	250	. .	volts
Grids-No.2 & No.4 Resistor	12000	. .	ohms
Grid-No.1 Resistor	22000	. .	ohms
Signal Frequency	88	108	Mc
Oscillation Frequency	98.7	118.7	Mc
Plate Current	6.8	6.5	ma.
Grids-No.2 & No.4 Current	12.6	12.5	ma.
Grid-No.1 Current	0.130	0.140	ma.

NOTE: The transconductance between grid No.1 and grids No.2 & No.4 connected to plate (not oscillating) is approximately 8000 micromhos under the following conditions: signal applied to grid No.1 at zero-bias; grids-No.2 and No.4 and plate at 100 volts; grid No.3 grounded. Under the same conditions, the plate current is 32 milliamperes and the amplification factor is 16.5.

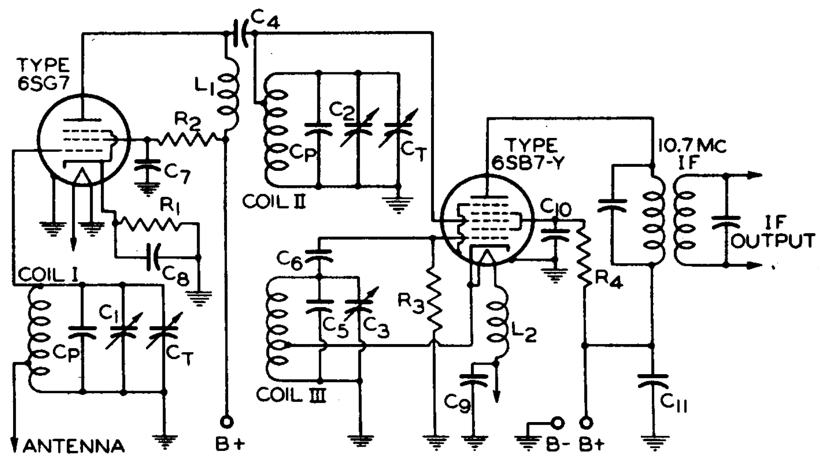
* The characteristics shown with separate excitation correspond very closely with those obtained in a self-excited oscillator circuit operating with zero bias.

** With grid-No.3 bias of -20 volts.

6SB7-Y

PENTAGRID CONVERTER

TYPICAL SELF-EXCITED CONVERTER CIRCUIT FOR TYPE 6SB7-Y WITH RF STAGE
88-108 Mc
(SEE TYPICAL OPERATION)



C1 C2 C3 = GANGED TUNING CONDENSERS: 7 - 23 µµf
C4 C5 C6 = 22 µµf
C7 C8 C9 C10 C11 = BY-PASS CONDENSERS
Cp = PADDING CONDENSERS
Ct = TRIMMER CONDENSERS

L1 L2 = RF CHOKES
R1 = 68 OHMS
R2 = 33000 OHMS
R3 = 22000 OHMS
R4 = 12000 OHMS

COIL I = ANTENNA COIL*: 2 TURNS No.14 WIRE + 1-1/4" LEAD No.20 WIRE. COIL TAPPED AT 1 TURN.
COIL II = INTERSTAGE COIL*: 2 TURNS No.14 WIRE + 1-1/4" LEAD No.20 WIRE. COIL TAPPED AT 1-1/4 TURN.
COIL III = OSCILLATOR COIL*: 1-7/8 TURNS No.14 WIRE, NO ADDED LEAD. COIL TAPPED AT 5/8 TURN.

* All coils 5/8" long, approx.

NOTE 1: All tap positions are approximate and should be adjusted to give stable operation.

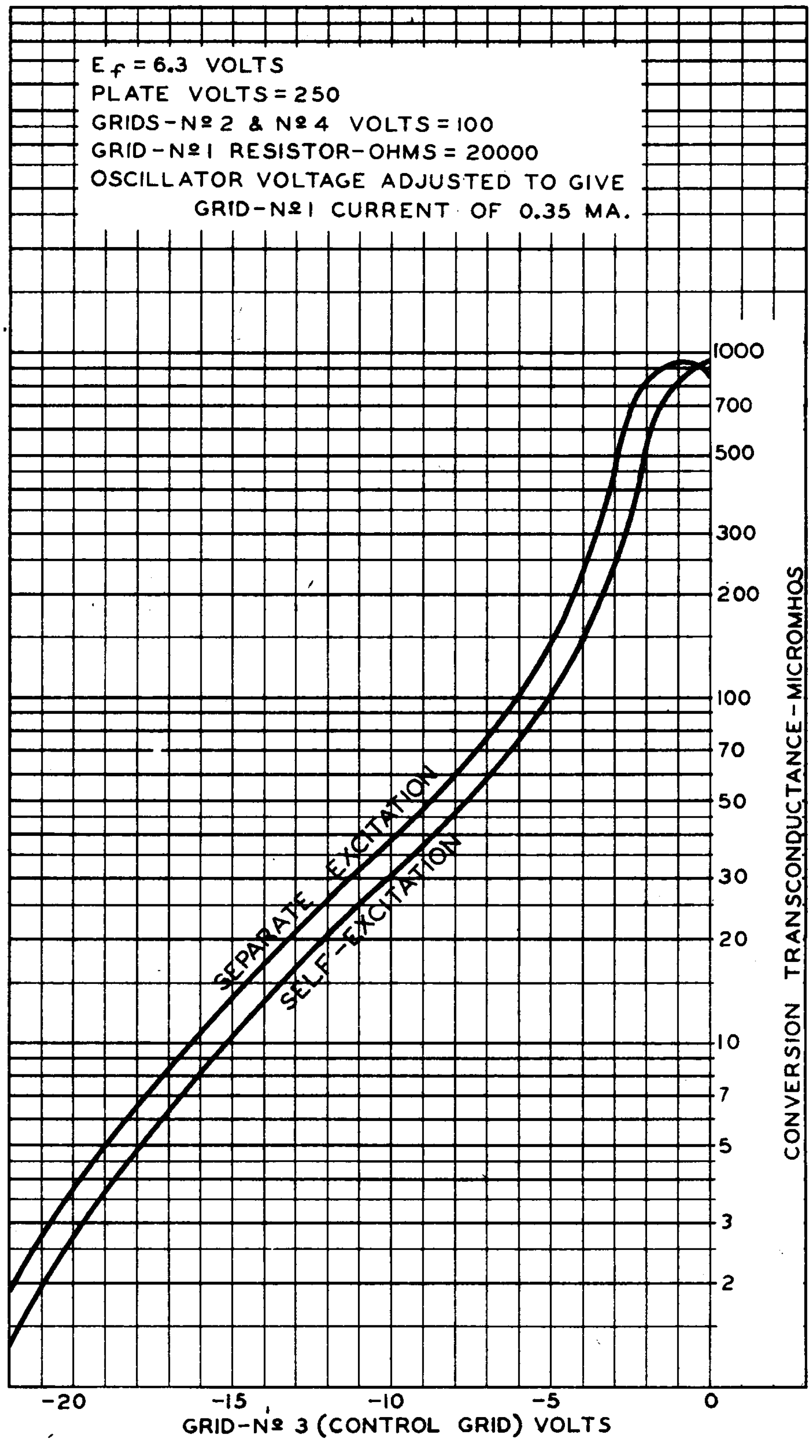
NOTE 2: Insertion of a small non-inductive resistor of about 3 ohms in the circuit at grid-No.3 terminal of the 6SB7-Y is helpful in preventing oscillation at the signal frequency.

92CM-6650

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OPERATION CHARACTERISTICS

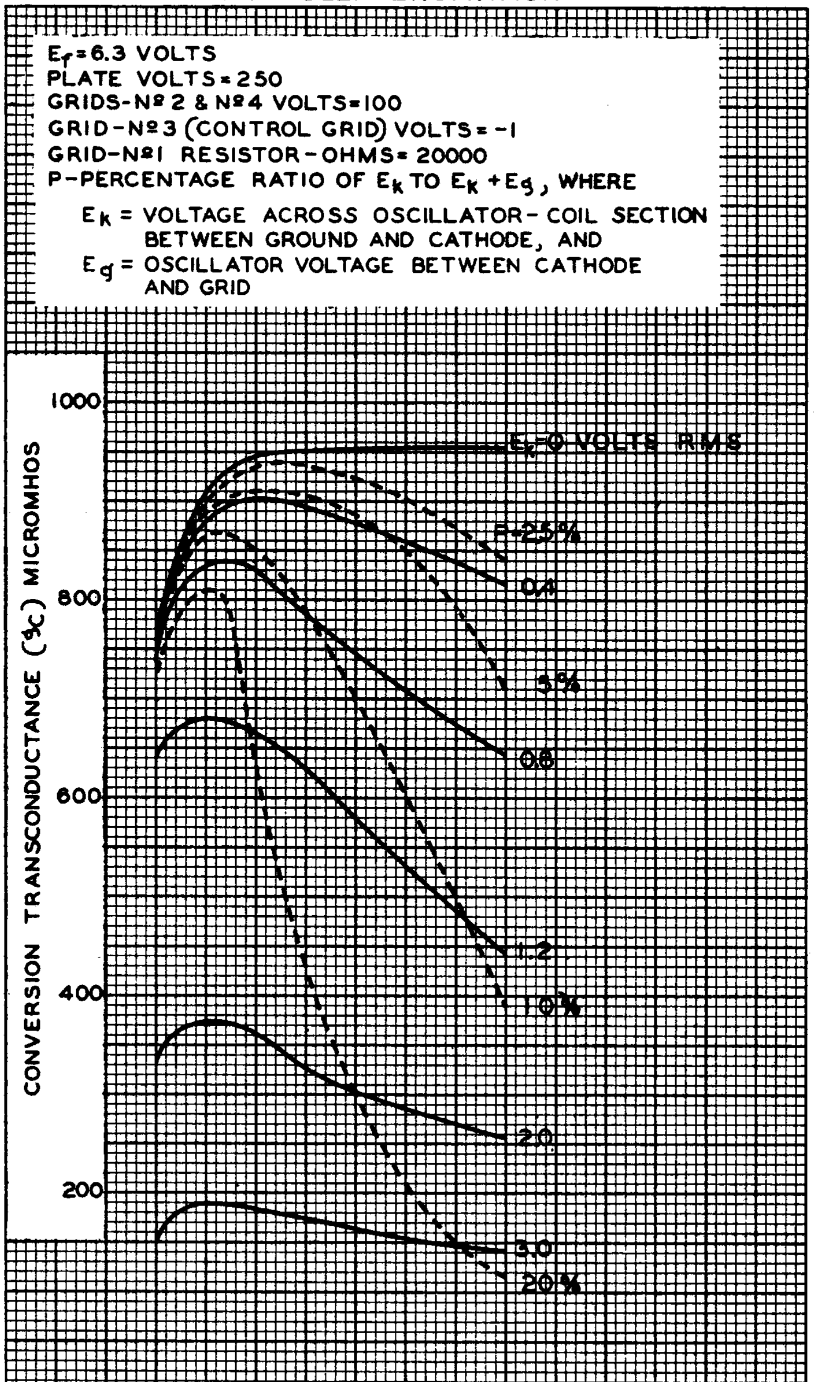


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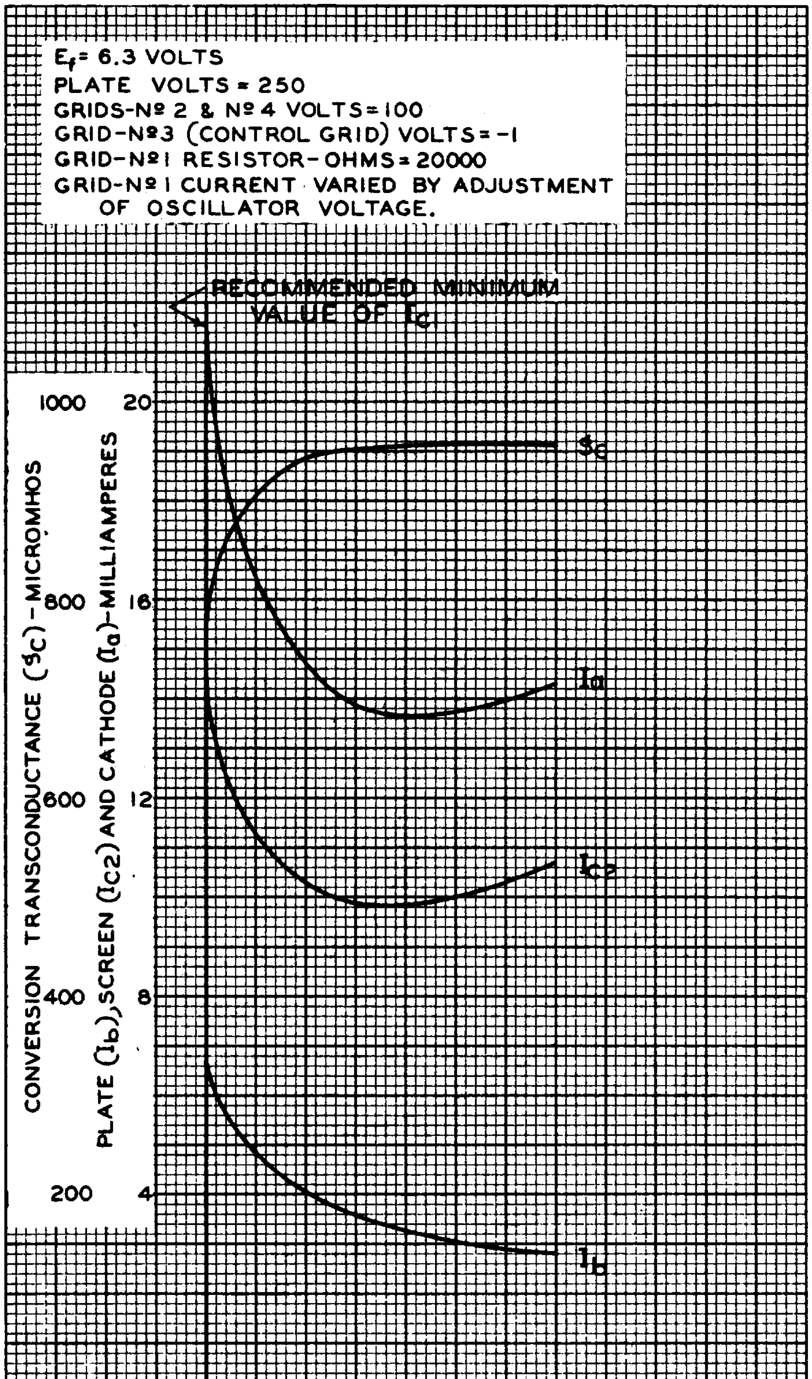
6SB7-Y

OPERATION CHARACTERISTICS
WITH SELF-EXCITATION



6SB7-Y

OPERATION CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION



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